DOCUMENT RESUME

ED 158 745 IR 006 305

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TITLE Costs and Their Assessment to Users of a Medical Library, Part IV: Differences in the Use of a Health Science Library by Various User Groups.
INSTITUTION Texas Univ., Austin. Center for Cybernetic Studies.
SPONS AGENCY National Library of Medicine (DHEW), Bethesda, Md.
REPORT NO CCS-RR-304
PUB DATE Jul 77
GRANT LM02333
NOTE 51p.; For related documents, see IR 006 302-304

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS Fees; Library Administration; Library Expenditures; *Library Services; Mathematical Models; *Medical Libraries; Program Budgeting; Program Costs; *Use Studies
IDENTIFIERS Cost Assessment

ABSTRACT

Part IV is a summary analysis of sample and survey data collected to facilitate the structure of the cost assessment models and to find out which, if any, subgroups of HAM-TMC user population make more (or less) use of various library services. Sampling data were obtained from brief interviews and in-house files of various user institutions to discover how medical and nursing professionals and students used six library services: in-house-use, reference services, interlibrary loan, manual bibliography searches, computer searches, and photocopying on-demand. Results are displayed in tabular form for user groups studied. In most cases, meaningful differences were not found in the intensity of use by user category; however, differences were found in relative amount of usage of these services. To help provide additional data, a three page questionnaire was distributed to 542 persons at 14 of the institutions served by the HAM-TMC library. Included in the survey were M.D.'s, Ph.D.'s, D.D.S.'s, M.S.'s, interns, and residents; excluded were medical and nursing students. Data from the 303 completed questionnaires which were returned were analyzed to determine differences that might exist among subdivisions of the user survey sample. Either the t-test or chi-square test was used, depending upon the situation, to test for statistical significance at the 5 percent level. Results are presented in both tabular and descriptive form, and a copy of the questionnaire with tabulated responses is appended. (Author/JPF)

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ED158745

Research Report CCS 304

COSTS AND THEIR ASSESSMENT TO USERS OF A MEDICAL LIBRARY, PART IV: DIFFERENCES IN THE USE OF A HEALTH SCIENCE LIBRARY BY VARIOUS USER GROUPS

by

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July 1977

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This research was partly supported by Grant Number LM02333 from the National Library of Medicine, Department of Health, Education and Welfare. Reproduction in whole or in part is permitted for any purpose of the United States Government.

IR006 305

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PREFACE

This report covers the results of a study that began October 1, 1974 and ended March 31, 1977; originally scheduled for completion in two years, various problems extended the study period to 30 months. Viewed in terms of the goals established in the proposal, the study has succeeded. Indeed, to the extent that an operational cost assessment model is now being used as an adjunct to administrative decision making at the principal study site, the study can be judged to have had significant impact that will probably spread to other similar institutions.

The study team was co-directed by Abraham Charnes, Director of the Center for Cybernetic Studies (CCS) and University of Texas System Professor and Jesse H. Jones Professor of Biomathematics and Management Science, and Sam W. Hitt, former Executive Director of the Houston Academy of Medicine-Texas Medical Center (HAM-TMC) Library. Other members of the study team were:

1) Milton E. F. Schoeman (Senior Investigator), Associate Professor of Management at the Graduate School of Business, University of Texas at Austin.

2) Richard A. Lyders (Administrative Associate), current Executive Director of the HAM-TMC Library.

3) Diane Cole Eckels (Research Associate), Associate Director of the HAM-TMC Library.

4) Keith Russell (Project Coordinator), former Research Librarian at the HAM-TMC Library.

5) Edward S. Bres, III (Research Assistant), Ph.D. candidate at the Graduate School of Business, University of Texas at Austin.

6) John J. Rousseau (Research Assistant), Ph.D. candidate at the Graduate School of Business, University of Texas at Austin.

7) Donna Robinson (Clerical Assistant), former staff member at the HAM-TMC Library.

As can be seen from the composition of this team, the study was structured as a joint venture, using a team approach in pursuing the goals. The HAM-TMC Library was the "site" for information, data gathering, testing and implementing the results, while the University of Texas Center for Cybernetic Studies was the site for analytical and computational methods of development. Much of the detailed description of this arrangement and other information regarding the format and pursuit of this study can be found either in the formal proposal or the previously distributed "Progress Report: October 1, 1974-September 30, 1975."

This final report is divided into four parts, each describing a separate study issue:

Part I- "An Overview of Services, Users and Budgeting in a Medical Library" discusses the general administrative concerns prompting this study initially. Briefly stated these concerns can be summarized in the question "how can the cost of a library be equitably allocated to its supporters in justifying its budget?"

Part II- "Recovering Costs from Service Usage" describes a model for associating one portion of total library costs with usage; the model's output are a set of

charges that can be used to recover (justify) these usage-based costs.

Part III- "Allocating Fixed Joint Costs" describes a model for completing the cost assessment (justification) process by accounting for the fixed joint costs; a "fair" and equitable mechanism is developed in the context of a game-theoretic approach.

Part IV- "Differences in the Use of a Health Science Library by Various Users" is a summary analysis of sample and survey data collected to facilitate the structuring of the cost assessment models. The results correlate well with previously discussed observations and extend some of them into new directions.

Although some references are made to other parts in the report, each part is written as a reasonably self-contained unit. Thus, readers may selectively choose to focus on only those topics of immediate interest and not need to read the entire report.

It should be explicitly noted that the data and relations ascribed to the HAM-TMC Library are real. The output assessments provided in one part have actually been used in the most recent budgeting cycle. Further refinements in the model are necessary, but the current version is already providing the library administration with a unique and practical tool for developing and analyzing its budget. It is anticipated that similar successful application can be made in other libraries once information in this report is

circulated.

Finally, the assistance of many staff members and professionals, both at the University of Texas and the HAM-TMC Library, is gratefully, albeit anonymously, acknowledgeed. Without the support and wholehearted cooperation of the National Library of Medicine and its project monitoring staff this study could not have been undertaken and carried through. The study team accepts full responsibility for the contents of this report and any criticisms should be directed to them.

CCS, Austin; HAM-TMC Library, Houston

July, 1977

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PART IV

DIFFERENCES IN THE USE OF A HEALTH SCIENCE LIBRARY BY VARIOUS USER GROUPS

IV-1. Introduction

The Houston Academy of Medicine - Texas Medical Center (HAM-TMC) Library is an independent library which provides primary library service to 10 institutions and secondary service to 12 other institutions which have libraries of their own. In all, approximately 10,000 persons are eligible to use the library; eligible users represent two medical schools, three nursing schools, a county medical society, a dental school, a school of public health, two allied health schools, several hospitals and other health-related institutions. The operating budget of the HAM-TMC Library is derived from annual assessments to each user institution.

A mathematical model, as discussed in preceding parts of this report, has been constructed to calculate the institutional assessments; in the process of constructing the model, it has been necessary to examine closely how the HAM-TMC Library users use the various services of the library. More particularly, there has been an attempt to find out which, if any, sub-group(s) of the user population make more (or less) use of various library services, both by frequency of use, and by intensity of use. Both sampling and survey techniques have been utilized in addressing this complex problem.

The purpose of this part of the report is to summarize many of the findings concerning use behavior at the HAM-TMC Library, expecting

that what has been observed here is indicative of user behavior in other health science libraries, and hence, the data can be useful to others working in health science librarianship. The data is presented in two parts, with the observations from sampling presented first, followed by the results of a user behavior survey conducted among a sample of the users (and non-users). Close examination of such data can have implications for what services are offered, how they are manned, how user education is conducted, and how collections are developed. As conditions change, availability of such data can help administrators decide how best to pare the budget in hard times, or where best to spend augmenting funds, or even what services, facilities, or areas of the collection need to be augmented or reduced when a served institution expands enrollment, adds (or drops) a department or institute, and so forth. Clearly, effective use of the cost assessment model depends, in part, on such data, and continued refinement of the data can enhance the applicability of the model.

IV-2. Data From Sampling

Six library services were closely examined in early 1975: in-house use, information services (reference), interlibrary borrowing, manual bibliographic searches, computer searches, and photocopy on demand (library service). For each service, except in-house use, rather extensive data were already available on the use of each service by each user institution over the past few years; for in-house use the only data available were the number of items reshelved by library staff following in-house use. Based on other user studies (Wood (1) and Garvey, Tomita, and Woolf (2) summarize much of what is known about user behavior) we

suspected that differing categories of users use different services differently - both quantitatively and qualitatively - and we wanted to investigate differences which might exist at the HAM-TMC Library. Using the somewhat artificial user classification shown in Table IV-1, we devised simple sampling techniques to help discover:

(1) Which group(s), if any, make heavier (or lighter) use of any service than would be expected based on number of users. (For example, does any user group circulate more books per user than any other group?)

(2) Which group(s), if any, make heavier (or lighter) demands on personnel time or resources within any service than other groups using the same service. (For example, does any group ask reference questions which take longer than those of another group?)

Below we present the results for each of the six services studied. Sample sizes are quite small in some cases, so we must urge caution in carrying the interpretation of some results too far. Nevertheless, we feel the data presented can be useful to others if judiciously used. Even though statistical tests were not appropriate, one can sometimes see trends in the data.

IV-2.1 In-house use

From early February to early May, 1975, in-house use was sampled by brief interview. At times selected to insure coverage of a wide range of library hours during the day, evening, and on weekends, each user seated at study tables in the library was approached and asked which institution he/she represented, his/her status at that institution

Table IV-1: Definition of user categories used in sampling.

Categories 1-4 include personnel only from the institutions served by the HAM-TMC Library; similar personnel not from a member institution are counted as visitors.

I. Medical Professionals - M.D.'s, Ph.D.'s, and associated personnel engaged in clinical practice, teaching, research, etc. Includes faculty, fellows, post doctorates, Houston Academy of Medicine members, and support staff, as research associates and assistants.

II. Nursing Professionals - Nursing and allied health (including occupational therapy and physical therapy) faculty and practitioners, including associated personnel.

III. Medical Students - Includes medical students, interns, residents, and all graduate students.

IV. Nursing Students - includes undergraduate nursing students, undergraduate allied health students, and high school students.

V. Visitors - includes anyone from an institution not served by the HAM-TMC Library on a contractual basis.

(i.e., student, faculty, etc.), and how many library items, if any, the person was using at that time. In all, 479 persons using 952 library items were sampled during that period; Table IV-2 shows who was sampled when. It is interesting to note differences in use of the library by different user groups; for example, nursing students comprise approximately 35% of in-house users at all times, whereas medical professionals are less evident in the evening and on weekends than they are during the day on weekdays.

Visitors, sometimes known as non-qualified users, are a common part of most library populations, since libraries generally allow in-house use of materials by such persons; it only becomes a problem when the visitors reach such proportions that they interfere with legitimate users. Overall, the visitor population in the sample constituted 12.1% of the in-house users, which is a rate comparable to that found by Balay and Andrew (3) for Yale University. On weekends, however, the visitor population reaches 28.6%, similar to the visitor population Darling (4) reported during evenings at the UCLA Biomedical Library. Of the visitors encountered in the sample, 72% were affliated with other institutions of higher learning in Houston.

A problem frequently encountered with the choice of user categories given in Table IV-1 was that nursing professionals constitute such a small component of our users (approximately 200 out of 10,000) that it was difficult to sample very many of them. Only 14 were encountered in the sample of 479 in-house users; to increase this sample size an additional 188 in-house users were sampled during daytime hours in June and July 1975 bringing the total to 667. Table IV-3 shows the average

Table IV-2: Percentage composition of the in-house user population at various times. (N=479)

	I. MED PROFS	II. NURS PROFS	III. MED STUDENTS	IV. NURS STUDENTS	V. VISITORS
Daytime on weekdays (7:30-6)	18.1%	3.2%	35.5%	34.5%	8.7%
Evenings on weekdays	9.0%	3.8%	46.2%	34.6%	6.4%
Weekends	5.5%	1.1%	28.6%	36.3%	28.6%
% of all sampled	14.2%	2.9%	35.9%	34.9%	12.1%

Table IV-3: Data on number of items used in-house by various categories of users

Category of User

	MED PROF	NURS PROF	MED STU-DENTS	NURS STU-DENTS	VISITORS	OVERALL
# of persons sampled	121	20	255	193	78	667
Average # of items used	2.39	1.65	1.93	2.04	1.78	2.03
Median # of items used	1	.5	1	1	1	1
Range	0-12	0-7	0-39	0-11	0-10	0-39
Standard Deviation	2.43	2.32	3.24	2.18	2.22	2.67
% using own materials (no lib. materials)	14%	40%	32.9%	16.6%	34.6%	25.5%

number of items used by users in each catetory. It is interesting to note that users in some groups are more likely to be using their own materials rather than library materials. For example, 40% of the nursing professionals sampled were using their own materials, whereas only 14% of the medical professionals were using their own. This suggests that medical professionals only come to the library when they need library materials, but nursing professionals, perhaps lacking quiet offices of their own, come to the library to do work not requiring library materials. To determine whether some user group(s) may be using less expensive materials than others, for approximately half the items being used in-house during the original sample of 479 users, we wrote down titles (and (and volumes for journals) of what was being used. We later looked up the original purchase price of the volumes used, and for 337 items we could find a price in the HAM-TMC Library records. To augment these data, prices were also gathered for 142 items which had circulated in late 1974 or early 1975. Because of overall small sample size seven data points over $500 were eliminated; for example, use of Excerpta Medica at $4,612.20 in one case would seriously inflate the average cost for that group. Table IV-4 shows the average price of items used by user categories. Medical students clearly use materials which cost (on the average) much more than the

Table IV-4: Cost (in dollars) of library items used by various user categories

User Categories

	MED PROF	NURS PROF	MED STUDENTS	NURS STUDENTS	VISITORS
# of items sampled	114	8	141	178	31
Average cost per item	$40.41	$18.91	$48.50	$23.15	$32.64
Range	0-452	2.95-87.50	0-184	0-190	0-190
Standard Deviation	59.65	26.38	33.27	33.25	48.22

overall average, and nursing students use items which on the average cost much less than the overall average. Other averages do not appear to be significantly different. Incidentally, of the items used in-house and identified explicitly, 72% were journal titles and 28% were monographs.

It is sometimes argued that nursing libraries should be combined with medical libraries where possible (see, e.g. Brandon (5)) because the breadth of materials needed by nurses and nursing students can seldom be afforded by stand-alone nursing libraries. We categorized, according to the NLM/LC classification system, the titles of 188 items used in the library by nursing students, and, indeed, the breadth of materials used does go beyond nursing staff. Table IV-5 shows the breakdown of subjects used; only 37.2% of all items used were nursing books, journals, or nursing indexes, suggesting that, at least, the current crop of nursing students at the institutions served by the HAM-TMC Library are using more varied materials. Depending on the emphasis of the curriculum at other nursing schools, libraries serving such schools may or may not find a similar distribution. Naturally, since this sample was taken only in the spring of the year, it may reflect topics being studied in the curriculum at that time; perhaps sampling in the fall would expose other subject areas called upon by nursing students earlier in the school year as other topics are studied.

IV.-2.2 Information services

During a one-week period in February, 1975, librarians staffing the Information Services desk recorded the time it took to receive and answer significant reference questions (i.e., questions other than directional questions, such as "where are the journals?"), as well

Table IV-5: Subject area distribution of books and journals used in the library by graduate and undergraduate students from two nursing schools served by HAM-TMC Library. (For each subject classification, specific topics of items used in that classification are listed.)

Classification	Specific subjects used	# of items used	% of all items used
BF	Psychology	2	1
HM	Interpersonal dynamics	1	1
HQ	Family planning, family	3	2
Q	General science	1	1
QT	Physiology, human biology	4	2
QU	Nutrition	1	1
QV	Pharmacopeia, PDR, drug evaluations	4	2
T	Medical technology	1	1
W	General medicine	7	4
WA	Public health, school health, health care, community mental health	7	4
WB	Physical therapy, physical medicine	9	5
WE	Scoliosis	2	1
WG	Cardiology	1	1
WH	Hematology	2	1
WJ	Kidney diseases	1	1
WL	Neurology, epilepsy, spinal injuries	9	5

Table IV-5: Continued

Classification	Specific subjects used	# of items used	% of all items used
WM	Psychiatry, psych. care, ortho-psych., crisis intervention, drug abuse, alcoholism, encounter groups, family psychoses	19	10
WP-WQ	OBGYN, reproductive biology, reproductive med.	13	7
WS	Pediatrics, child lung disorders, pediatric care, ped. cardiology	10	5
WX	Hospitals, emergency medicine	6	3
WY	Nursing, pediatric nursing, nursing psych., surgical nursing, rehab. nursing, schools of nursing	64	34
z	Use of specific indexes		
	Nursing indexes	6	3
	Sociological Abstracts	1	1
	Psychological Abstracts	2	1
	Index Medicus	9	5
	Excerpta Medica	3	2

as the category of user (Table IV-1) and institution of the requestor (a normal statistic kept in the department). Table IV-6 shows the average time, in minutes, taken to field questions by each user group, as well as the percentage of questions asked by each group. No group's average seemed to differ significantly from the overall average. Medical professionals ask a larger proportion (34%) of all reference questions than any other group.

IV-2.3 Interlibrary borrowing

Examination of 247 interlibrary borrowing requests processed in January, 1975, showed that medical professionals accounted for 81.8%, nursing professionals for 2.0%, and medical students for 16.2%. Nursing students, defined as undergraduate nursing students in our study, are ineligible to use interlibrary borrowing.

For 88 interlibrary borrowing requests processed starting in March, 1976, (some items were not finally received until June), interlibrary borrowing personnel recorded the time needed for verification, location and logging, and "twxing" of the request. Fifty-three requests were from medical professionals; the average time to process these was 14.98 minutes. Thirty-four were from medical students; the average time for these was 10.59 minutes. A two-sample t-test showed that interlibrary loan requests from medical professionals take significantly longer (at the 5% level) to process than do requests from medical students. Analysis of data for nursing professionals was not possible - only one request from a nursing professional was received during this period.

We hypothesized that items requested for research purposes, as

Table IV-6: Time (in minutes) required to answer reference questions from various user groups

User Category

	MED PROF	NURS PROF	MED STUDENTS	NURS STUDENTS	VISITORS	TOTAL
# of questions asked	121	19	72	70	73	355
% of all questions asked	34	5	20	20	21	100
Average time to answer	3.71	3.63	2.96	3.4	4.14	3.58
Median time to answer	2	2	2	2	3	2
Range	1-45	1-15	1-25	1-15	1-25	1-45
Standard Deviation	5.02	3.39	3.52	3.39	4.33	4.22

opposed to those requested for teaching or patient care or coursework, might be more esoteric, and, hence, harder to verify and/or harder to locate. In March, 1976, we attached a small slip to blank interlibrary borrowing request forms, asking the requestor to indicate whether he/she intended to use the requested item primarily in support of research, teaching, patient care, coursework, or other work. Eliminating requests which were cancelled, 211 requests with this information were processed. Table IV-7 shows the average time taken to process interlibrary borrowing requests for these purposes.

IV-2.4 Manual bibligraphies

For topics which do not readily lend themselves to computerized searches, Information Services librarians will do manual searches, but only for faculty and graduate students. For a one year period, February, 1974-February, 1975, 98 such searches were done. Table IV-8 shows the average, median, and ranges of times for doing these searches for three categories of users (nursing students, defined as undergraduates in our study are not eligible).

Table IV-7: Time (in minutes) required to process interlibrary borrowing requests for various purposes. (Cancelled requests are not included in these data.)

Primary Purpose of Request

	RESEARCH	TEACHING	PATIENT CARE	COURSE WORK	OTHER	TOTAL
# of requests	170	25	10	28	7	211
Average time to process	11.95	11.76	11.6	11.46	10.57	11.82
Median time to process	11	9.5	10.5	11.5	10.5	11.5
Standard Deviation	4.63	6.45	4.01	4.48	1.51	4.88

Table IV-8: Time (in hours) required to prepare manual bibliographies for various user categories, February, 1974 to February, 1975. (Members of our category "nursing student" are not eligible to request manual bibliographies.)

User Category

	MEDICAL PROFESSIONAL	NURSING PROFESSIONAL*	MEDICAL STUDENT	TOTAL
Number of manual bibliographies requested	89	7	7	103
Average time to prepare	1.21	1.96	1.51	1.28
Median time to prepare	1	2	1	1
Range	0.003-4	0.25-4.5	0.5-4	0.083-4.5
Standard Deviation	.90	1.43	1.30	.98

*Only 2 manual bibliographies were prepared for this group during February, 1974 to February, 1975. These data were augmented by 5 manual searches for nursing professionals done in 1972-1973.

IV-2.5 Computer searches

For 388 computer searches processed from January 2, 1975, to February 17, 1975, 53.6% were requested by medical professionals, 1.0% by nursing professionals, 28.9% by medical students, 2.6% by nursing students, 12.4% by visitors, and 1.5% by fee basis users of the library. For 18 Medline searches done in March, 1975, Automated Information Services recorded total time for the search interview, formulating and running the search, and any time needed for explanation of results to the user. While no vast decisions can be based on such a small sample, entirely of Medline (not including Backfile) searches, the following results were found: an average time of 18.97 minutes for 16 searches run for medical professionals, and an average of 15.65 minutes for the two searches run for nursing professionals.

IV-2.6 Photocopy on demand

Based on 92 requests for photocopies received the first week of February, 1975, 78.2% were done for medical professionals and 18.5% for medical students, with 3.3% done for visitors. Nursing professionals and nursing students essentially do not use this service - only 5 of 15,605 (0.03%) articles photocopied in 1974/75 were for these user categories.

IV-2.7 Overall comparison of sampling data

Using total figures for use of various library services during 1974-75, the number of circulation badges issued to each category of user, and the percentage of use of various services by the user categories, it is possible to make some comparisons of usage by each user group. Table IV-9 shows the average number of uses of each service

Table IV-9: Relative use, expressed in uses per circulation badge issued, of various services by user categories (based on 1974-75 data.)

User Categories

	MED PROF	NURSE PROF	MED STU-DENTS	NURS STU-DENTS	TOTAL
# of active circulation badges	5404	212	3603	1272	10491
Average # of items used in the library per badge	5.58	16.74	16.75	47.44	16.92
Average # of circulations per badge	6.41	14.86	10.49	23.95	10.01
Average # of reference questions aked per badge	1.42	5.18	1.22	3.46	2.10
Average # of articles photocopied per badge (library photocopy service)	2.23	0.02	0.77	0	1.48
Average # of manual bibliographies per badge requested	0.014	0.009	0.002	0	0.008
Average # of computer searches requested per badge	0.30	0.13	0.23	0.07	0.24

per badgeholder for each user group. This table shows, for example, that there are nearly 24 circulations for every badge issued to nursing students, but only about 6 circulations per badge issued to medical professionals.

If one thinks of circulation and in-house use as two of the less expensive services offered by the library, and manual searches and computer searches as the most expensive service offered, one can see that nursing students are the heaviest users of both of the less expensive services, and medical professionals are the heaviest users of the two most expensive services.

IV-3. Survey Results

In most cases we did not find meaningful differences in the intensity of use of various services, by our user categories, although we did find differences in relative amounts of usage of these services, as just mentioned. Some authors have suggested that more basic differences in user behavior exist when one compares clinicians with researchers, pure scientists with applied scientists, etc. Mick, Rubenstein, and O'Keefe (6), for example, found that among medical students research oriented students were more active users of periodicals than non-research oriented students. Gomes (7) and Friedlander (8) both have differentiated between clinicians and others in medical libraries. Wood (1) summarizes other studies which show researchers (in general) use the literature more, use more foreign languages, and use library services more than less research oriented counterparts. Lancaster (9) found that those engaged primarily in research or teaching scanned more journals than those engaged primarily in clinical activities.

To help provide additional data - in more detail than is feasible in a quick interview in the library, and to include some non-users in the sample, a survey was conducted in April-May, 1976. Following a pre-survey, a three-page questionnaire (Appendix IV-1) was distributed to 542 persons at fourteen of the institutions served by the HAM-TMC Library. Included in the survey were M.D.'s, Ph.D.'s, D.D.S.'s, M.A.'s and M.S.'s, interns, residents, fellows, research associates, and others considered as members of the medical professional and nursing professional categories; excluded were persons in the medical student (except residents and interns) and nursing student categories.

The sample was chosen to be representative of the various types of users (both practicing and teaching M.D.'s and nurses, etc.) and was to some extent dictated by convenience, that is we excluded some institutions for which no up-to-date directory of employees was available. Within each institution the sub-sample was randomly chosen, although different percentages of the persons from different institutions are represented. While rigorous statistical work would require a random sample from a composite of all of the institutions, this was not feasible. Nevertheless, the sample, chosen, is adequate, and not unrepresentative of the larger population.

Overall, 303 completed questionnaires were returned, for a return rate of 56% as shown in Table IV-10. Future surveyors may want to note that there is some difference in the return rate for various sub-groups of the sample. For example, 74% of the surveys sent to Ph.D.'s were returned, but M.D.'s only returned 51% of those sent to them; this would imply that anyone doing a similar survey might want to send more

Table IV-10: Return rates for various subgroups of the user survey sample

	Subgroups								
	Medical Professionals						Nursing Professionals		Other
	MD	DDS	PHD & OTHER DOCS	MA/ MS	INTERNS/ RESI-DENTS	FELLOWS RE-SEARCH ASSOCS.	PHD	OTHER-RN, ETC.	SOCIAL WORKERS OT'S,ETC.
# of question-naires sent	192	21	115	26	48	24	5	102	9
# returned	97	15	85	14	23	12	4	47	6
% returned	51	71	74	54	48	50	80	46	67

to M.D.'s than Ph.D.'s to get a comparable return rate.

The overall return represented 20 of the institutions served, since many health professionals in the Houston area hold joint appointments at two or more institutions. In all, 48 different departments and/or disciplines were represented in the sample. Appendix IV-2 is a modified version of the questionnaire, indicating responses.

Curiously, many of the respondents asked for services which the library already had. Other libraries have also found this (10) but it does indicate fertile ground for library public relations and user education efforts.

It is also interesting to note that the two most used foreign languages (French and German) are the same as those found by Gomes (7) in her study of interlibrary loan requests at the Midwest Regional Medical Library, although she found more requests for German than for French items, and in our study more could use French than could use German. This could lead to the conclusion that literature in German is slightly more in demand, either because of volume published, availability, or some other factor.

To facilitate analysis of returns in various ways, data from the completed questionnaire were transferred to edgenotch cards. We then proceeded to compare various subgroups, seeking differences which might exist. The t-test or chi-square test, depending on the situation, was used to test for statistical significance at the 5% level. Below, headed by comparisons made, are summaries of the results; space does not permit listing all hypotheses tested, nor all data. Again, even though a difference may not be statistically significant, one can still

note some trends. On the other hand, it must also be kept in mind that these data are from a self-administered questionnaire, and, as such, are not quite as reliable as data which might actually be collected by observation. For the purposes of analysis, the sample was subdivided as shown in Table IV-11.

IV-3.1 Research vs clinician vs educator vs administrator

Using a classification system similar to that of Lancaster (9) and Friedlander (8) the Medical subgroup was divided into those who had indicated their major work as research (N=64), clinical practice (N=61), teaching (N=24), and administration (N=12), and compared them, one group at a time with the Medical subgroup (N=187) as a whole.

Compared with the medical subgroup as a whole, significantly more researchers are working on grant funds, which can be expected since most research is so funded, and researchers do use more foreign languages and scan more journals, again as can be predicted from studies cited by Wood (1) and others. Researchers also make more use of Chemical Abstracts, Current Contents, Biological Abstracts, and Science Citation Index.

In contrast, clinicians, who are more involved with everyday provision of patient care, have less grant funds, use fewer foreign languages, publish less, scan fewer titles, and make less use of many library services and materials than does the average medical subgroup member.

Teachers also have less grant funds; their only other significant difference from the medical subgroup is that they make more use of manual biblographies.

Despite several low indices, administrators are not significantly

Table IV-11: Subdivisions of the user survey sample, for analysis purposes

Subgroup	Description	Number	% of total
Medical	M.D.'s, Ph.D.'s, & support personnel	187	62
Dental	DDS	15	5
Fellow	Fellows	17	6
Residents & Interns	Residents & Interns	23	8
Nursing	Practicing & teaching nurses	50	17
Other	Social workers, speech pathologists, etc.	11	4
	Total	303	

different on any of the tested characteristics from the medical subgroup; this is probably because the sample size (N=12) was so small.

Concerning the sources from which respondents filled their information needs, we found that both researchers and teachers, on the aggregate, ranked libraries first and their personal collections second in importance (as indicated by percent of information needs supplied from each source); clinicians and administrators ranked their personal collections first and libraries second. In all four groups, department and laboratory collections ranked third, meetings fourth, and colleagues fifth as to importance as sources of needed information. One could surmise that both researchers and teachers demand more varied sources of information than it is possible to have in their personal collections, and, hence, rely more on libraries. Clinicians and administrators, perhaps by the urgency of their work, may be more bound to sources close at hand, i. e., their personal collections, even if that source is sometimes less than adequate.

We also noted, on questions 10 and 11 (Appendix IV-1) that respondents frequently indicated different information needs than might be expected from the work being done. For example, one might be doing 50% research, but 85% of his information needs might be related to research. For the medical subgroup as a whole, the percentage of information needs for research and clinical practice generally exceeded the percentage of time devoted to work in these areas; the percentage of information needs for administration was usually less than the percentage of time devoted to administration.

Noting the above, and suggestions by Friedlander (8), leads to

the hypothesis that user behavior among the medical subgroup is conceivably more related to major information need than it is to major work area. We re-analyzed the medical subgroup on this basis, comparing those with major information needs in research (N=90), clinical practice (N=30), and teaching (N=23) with the medical subgroup as a whole. (There were not enough with a major information need in administration to analyze.) The results were generally the same as those reported above.

IV-3.2 Dentists, fellows, interns & residents, and nurses

It was also important to analyze how the dentist, fellow, intern and resident, and nurse subgroups compared with the medical subgroup. Logically, based on differing responsibilities of each group, some differences should be anticipated. Again, in each case each subgroup is compared with the medical subgroup. The t-test and chi-square tests, where applicable, were used to test for statistical significance at the 5% level.

Dentists, since they have a library of their own, were expected to use the HAM-TMC Library less, as they did.

The fellows subgroup includes both pre-doctoral fellows and post-doctoral fellows, all of whom are engaged in research to some extent. Hence, the high percentage of this group working on grant funds. They have fewer publications, probably, because they are younger, many in very early years of their careers, or still in training. One might suppose they use the library more because of the need for research

materials; Chemical Abstracts use is probably higher because of the nature of their work; and self service photocopy is higher (and on-demand photocopy lower), probably becuase they cannot afford to have photocopies made by library staff.

Interns and residents are largely concerned with clinical practice, are kept quite busy, and have not yet established their careers. Hence, they work less with grant funds, and have fewer publications, and resemble clinicians in using fewer languages, scanning fewer titles, and using interlibrary loan less.

The nursing subgroup is quite different from the medical subgroup, with less work on grant money, fewer publications, less use of foreign languages, and fewer titles scanned. They do use more books and journals in the library, and do keep up in a greater number of fields than the medical subgroup. The latter probably reflects the fact that the nursing field draws upon many fields, such as psychology, education, public health, obstetrics and gynecology, etc., in performance of its role. This further reinforces the need for a wide variety of materials to be available to nursing practitioners.

Of these four groups, fellows rank libraries as the source of more of their information than any other source, followed by personal collection and departmental and lab collections - same as researchers and teachers. Dentists, interns and residents, and nurses all list their personal collections first, followed by libraries and departmental/ laboratory collections.

IV-3.3 M.D.'s and Ph.D.'s

Within the medical subgroup we compared M.D.'s and Ph.D's.

Differences abound, all of which could be expected. More Ph.D.'s have grant funds, probably because of more research activity. More languages are used by Ph.D.'s, probably because one or more foreign languages are required to earn the degree. Ph.D.'s scan more journals regularly, again probably reflecting research orientation. Overall, Ph.D.'s report that they use the HAM-TMC Library more often - again probably a reflection of broader needs associated with research. Each of the services and facilities more used by Ph.D.'s could be expected. Less use of Index Medicus may reflect more interest in the basic sciences than in medical practice. M.D.'s ranked their personal collection as providing more of their information needs than any other source; Ph.D.'s listed libraries first.

Information such as the above should give library administrators some idea of what to expect. If, for example, the sponsoring institution opens a new department staffed predominently by Ph.D.'s, use of foreign language materials, and the library in general will increase more than if a similar sized group of M.D.'s was added.

IV-3.4 Older vs younger

Zucherman and Merton (11) have reviewed much of the literature on the changing roles of scientists as they age; they cite one study, for example, which indicates that as a scientist ages, he/she spends less time on research and more on administration. Consequently, we would expect older health scientists in the sample to differ from younger health scientists in user behavior. While the questionnaire did not ask for age, it did ask for the number of years since the highest degree was earned. The responses from the medical subgroup

were divided into two categories: those from respondents who earned their highest degree more than 20 years ago and those from respondents who earned their highest degree 0-5 years ago.

Analysis reveals older workers are involved less with grant funds and foreign languages, and in general use the library less. For some reason, the older workers do use Excerpta Medica more. The older workers rank their personal collection first as a source of their information needs, whereas the younger workers list libraries first. This may reflect differences in the nature of the work being done since the younger group is doing more research, or it may be that persons in the younger group have not yet had time enough to build their personal collection to an adequate size.

IV-3.5 Various specialty groups.

Many studies have indicated differences in user behavior depending on the area of specialization of the user. Wood (1) summarizes some of these studies, and van Styvendaele (12) comments on mathematicians. Some disciplines, it has been found, rely on a very specialized body of knowledge, and workers in those fields may seldom use literature from other fields, whereas other disciplines may require broader materials, with workers in these fields reading in the literature outside their field. We wondered if the same would be true for users representing different departments. Friedlander (8) has reported on some differences between departments at a medical school.

We have already shown that some differences do exist for nurses and dentists. We compared 5 departments (Biochemistry, Medicine, Pediatrics, Psychiatry, and Public Health) for which 13 or more survey

responses were received. The responses of each department are compared with those of the medical subgroup. Each departmental group is a blend of M.D.'s, Ph.D.'s, interns, residents, and fellows who have returned the questionnaire. No attempt has been made to insure similar composition of each group, and caution should be used in interpreting these departmental results for this reason, and because of small sample sizes.

Biochemists are all involved with grant funds, keep up in fewer fields than the medical subgroup as a whole, and have fewer publications. They make more use of materials in the library, indexes and abstracts (especially Chemical Abstracts and Biological Abstracts), and they use self-service photocopy more frequently than the average medical subgroup member.

Users from departments of medicine also seem more specialized, keeping up in fewer fields, and overall report they use the library less, although use of no particular service or materials is significantly lower than the use by the medical subgroup.

Pediatricians also report fewer areas in which they try to keep up, have fewer publications, use interlibrary loan less, and index and abstracts, particularly Index Medicus, more than the medical subgroup.

Psychiatrists keep up in fewer fields, publish less, and scan fewer journal titles, but do not make significantly different use of the library's services and materials than the medical subgroup.

Since the public health specialists have their own library, we expected they would overall make less use of the HAM-TMC Library, but, surprisingly, they don't - in fact for most services they report using

the HAM-TMC Library slightly more than the medical subgroup. They do, however, work more often with grant funds than the medical subgroup as a whole.

Pediatricians and persons from departments of medicine both report their personal libraries as the major source of their information needs. Biochemists, psychiatrists, and public health specialists all report libraries as their major source.

While our sample size was inadequate for analyzing other departments, this seems to be an area of future study that could provide useful information for library administrators.

IV-4. Summary

Administrators of health science libraries frequently lack sufficient data for some decisions they must make. This part of the report has presented some data on user behavior in health sciences libraries, data which indicates that differences in work and informational need, education, employment or student status, age, and area of specialization can all contribute to differences in the use of materials, facilities, and services at health science libraries. Administrators are urged to utilize the implications of this study and others, and similar studies they may conduct within their own unique user body, in making decisions on which services should be offered, what facilities should be available, and what the collection should consist of. Such information is particularly important in making decisions in times of rapid growth or hasty cutbacks economically necessitated. It should also be noted that the results presented here were incorporated in the construction of the cost assessment model described previously.

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Appendix IV-1: Survey Questionnaire

Instructions: Please answer all questions to the best of your ability and your understanding of the question. We realize that you may not have previously thought in terms of some of these questions, but your best answer will be of help to us.

1. At what institution and in what department is your primary appointment?
   Institution_____ Department_____

2. What is your job title or position, in general terms, at this institution (such as faculty member, intern, resident, research associate, etc.)?_____

3. What degrees have you earned? (Please check all which apply)
   ____M.D. ____Ph.D. ____M.S. or M.A. ____B.S. or B.A. ____Other

4. In what year(s) did you earn the highest degree(s) checked in item 3?_____

5. Do you have a library card which allows you to check out books at the Houston Academy of Medicine - Texas Medical Center Library (also known, although erroneously, as the Jesse Jones Library)?
   _____yes _____no

6. Is any of your work directly supported by grant money from the federal government or a private foundation? _____yes _____no

7. Please check all foreign languages below in which you ever read books or articles related to your work.
   _____French _____Italian _____Spanish
   _____German _____Russian _____Other (please state:_____)

8. Please check the major field(s) in which you try to keep up:

____Anatomy	____Gynecology	____Physical Therapy
____Anesthesiology	____Hematology	____Physiology
____Biochemistry	____Histology	____Psychiatry
____Biomathematics	____Immunology	____Psychology
____Biomedical Technology	____Microbiology	____Public Health
____Biophysics	____Neurology	____Radiology
____Cardiology	____Nursing	____Sociology
____Cytology	____Obstetrics	____Surgery
____Dentistry	____Opthalmology	____Toxicology
____Dermatology	____Orthopedics	____Urology
____Endocrinology	____Otorhinolaryngology	____Veterinary Medicine
____Gastroenterology	____Pathology	____Other (Please list:
____Genetics	____Pediatrics	_____
____Gerontology	____Pharmacology	_____)

9. Approximately how many publications and/or papers have you authored or joint-authored in the past 3 years?_____

10. Approximately what percentage of your work time is devoted to each of the following activities? (Percentages should add to 100%)

Teaching	_____%
Clinical practice/patient care	_____%
Research	_____%
Administration	_____%
Other (Please specify:_____)	_____%

11. Approximately what percentage of your work-related information needs relate to each of the following activities?

Teaching	_____%
Clinical practice/patient care	_____%
Research	_____%
Administration	_____%
Other (Please specify:_____)	_____%

12. Approximately what percentage of your work-related information needs are generally met by each of the following sources of information?

Your personal information system (reprint files, personal library)	_____%
Books, journals and reprints in your department or laboratory, but which are not your own	_____%
Books, journals and other information sources available at the Houston Academy of Medicine - Texas Medical Center Library	_____%
Books, journals and other information sources available at or through other libraries	_____%
Colleagues, friends and acquaintances	_____%
Seminars and Professional Meetings	_____%
Other Sources (Please name:_____)	_____%

13. Approximately how many different journal <u>titles</u> do you regularly scan for current awareness, either through your own personal subscriptions or other sources of journals?_____

14. Approximately how often do you use the Houston Academy of Medicine - Texas Medical Center Library, either in person, by phone, or by sending a secretary, research associate, or other person in your place?

_____Never
_____Seldom (one to six times per year)
_____Frequently (more than 6 times per year, but less than weekly)
_____Very Frequently (at least one time each week)

15. Please check any of the following conditions which, if they existed, might induce you to use the Houston Academy of Medicine - Texas Medical Center Library more often:

_____If the library were nearer to my office of laboratory
_____If the library had a better collection in (subject area:_____)
_____If the library offered more or better services
(name which:_____)
_____If the library were open more hours (when:_____)
_____If more parking were available near the library
_____Other (Please explain)_____
(Please use back of this page if more space is needed for comments.)

16. Approximately how many books and journals do you usually look at or check out <u>when you use the HAM-TMC Library</u>?

_____0 _____1-5 _____6-10 _____11-20 _____more than 20

17. In this section, please indicate by circling the appropriate response how often you perform the listed activity at the HAM-TMC Library, either in person, or by phone, or by sending another person in your place.

	never	sometimes	frequently	ACTIVITY
a.	1	2	3	Use library materials in the library
b.	1	2	3	Work or study in the Library <u>without</u> using any library materials
c.	1	2	3	Check out books, journals, or audiovisuals
d.	1	2	3	Ask questions at the reference desk (Information Services)
e.	1	2	3	Request materials on Interlibrary Loan
f.	1	2	3	Request a MEDLINE Search, or other computer search
g.	1	2	3	Consult the Card Catalog
h.	1	2	3	Consult indexes or abstract journals in the library
i.	1	2	3	Look at current issues of journals
j.	1	2	3	Request to have a photocopy made
k.	1	2	3	Make a photocopy yourself on self service machines
l.	1	2	3	Request a bibliography to be prepared manually
m.	1	2	3	Consult <u>Index Medicus</u> in the library
n.	1	2	3	Consult <u>Excerpta Medica</u> in the library
o.	1	2	3	Consult <u>Chemical Abstracts</u> in the library

17. Continued

	never	sometimes	frequently	ACTIVITY
p.	1	2	3	Consult Current Contents in the library
q.	1	2	3	Consult Biological Abstracts in the library
r.	1	2	3	Consult Science Citation Index in the library

18. If you have used the MEDLINE service offered by the HAM-TMC Library, how satisfactory have you found that service to be?

_____very satisfactory ___generally satisfactory _____not satisfactory

--Have you found the service to be worth the charges? _____yes _____no

19. In the space below, please make any suggestions you may have as to how the HAM-TMC Library can better meet your information needs. (Use the back of this page if needed.)

_____

_____

_____

Please return this questionnaire to: Houston Academy of Medicine - Texas Medical Center Library.

Jesse H. Jones Library Bldg.
Houston, Texas 77030

Thank you.

Appendix IV-2: Tabulation of responses from 303 completed questionnaires. (Numbers in parentheses indicate the percentage who indicated a given choice.)

1. "At what institution and in what department is your primary appointment?

   Twenty institutions and 48 departments are represented in the sample.

2. "What is your job title or position, in general terms, at this institution (such as faculty member, intern, resident, research associate, etc.)?"

224	(74%) Faculty	3	(1%) Intern
17	(6%) Fellow	11	(4%) Nurse
13	(4%) Research Associate	15	(5%) Other
20	(7%) Resident		

3. "What degrees have you earned?"

   (The highest degree or degree combination, as indicated by the respondent is tabulated here.)

119	(39%) MD	2	(1%) MD/PHD
85	(28%) PHD	1	(.3%) MD/DDS
15	(5%) DDS	1	(.3%) MD/JD
3	(1%) EDD	51	(17%) MS
4	(1%) DVM	15	(5%) BS
		16	(9%) OTHER

4. "In what year(s) did you earn the highest degree(s) checked in item 3?"

   Age of degrees

101	(33%) 0-5	56	(18%) 21-35
137	(45%) 6-20	6	(2%) over 35

5. "Do you have a library card which allows you to check out books at the Houston Academy of Medicine - Texas Medical Center Library."

273	(90%) yes	30	(10%) no/no answer

6. "Is any of your work directly supported by grant money from the federal government or a private foundatio..?"

153 (50%) yes	147 (49%) no	3 (1%) no answer

7. "Please check all foreign languages below in which you ever read books or articles related to your work?"

	Others (as listed by respondents)		
89 (37%) French			
84 (35%) German	6 (2%) Japanese	2 (.8%) Polish	
11 (5%) Italian	2 (.8%) Portuguese	1 (.4%) Chinese	
8 (3%) Russian	1 (.4%) Greek	1 (.4%) Hebrew	
34 (14%) Spanish	1 (.4%) Persian	1 (.4%) Swedish	

(129 respondents (42.6%) indicated they use at least one foreign language overall, the average number of languages used is 0.77, the median is 0, the range is 0-6, and the standard deviation is 1.103)

8. "Please check the major field(s) in which you try to keep up:"

37	Anatomy	35	Neurology
10	Anesthesiology	48	Nursing
55	Biochemistry	24	Obstetrics
10	Biomathematics	10	Ophthalmology
8	Biomedical Technology	15	Orthopedics
12	Biophysics	13	Otorhinolaryngology
28	Cardiology	27	Pathology
11	Cytology	40	Pediatrics
23	Dentistry	55	Pharmacology
19	Dermatology	9	Physical Therapy
56	Endocrinology	46	Physiology
21	Gastroenterology	29	Psychiatry
38	Genetics	38	Psychology
13	Gerontology	34	Public Health
22	Gynecology	13	Radiology
24	Hematology	18	Sociology
12	Histology	32	Surgery
39	Immunology	6	Toxicology
27	Microbiology	13	Urology

8. Continued

8 Veterinary Med.

73 Other

(Overall, respondents indicated an average of 3.78 fields kept up in; the median number is 3, the range is 1-21, and the standard deviation is 2.8)

9. "Approximately how many publications and/or papers have you authored or joint-authored in the past 3 years?"

(Overall, respondents had an average of 6.8 publications in the past 3 years; the median is 3, the range 0-90, and the standard deviation 10.74)

10. "Approximately what percentage of your work time is devoted to each of the following activities?" (Below is indicated the number of times each work activity was listed as occupying the largest % of a respondent's time)

57 (19%) Teaching

99 (33%) Clinical practice/patient care

79 (26%) Research

25 (8%) Administration

17 (6%) Teaching-Clinical (tie)

10 (3%) Teaching-Research (tie)

1 (.3%) Clinical-Research (tie)

15 (5%) Other Combinations

11. "Approximately what percentage of your work-related information needs relate to each of the following activities?" (Below is indicated the number of times each category of information need was listed as the largest % of a respondent's needs.)

54 (18%) Teaching

68 (22%) Clinical practice/patient care

109 (36%) Research

5 (2%) Administration

21 (7%) Teaching-Clinical (tie)

17 (6%) Teaching-Research (tie)

10 (3%) Clinical-Research (tie)

19 (6%) Other Combinations

12. "Approximately what percentage of your work-related information needs are generally met by each of the following sources of information?" (Below is indicated the number of times each source was ranked first by the respondents.)

Your personal information system (reprint files, personal library)	128 (42%)
Books, Journals and reprints in your department or laboratory, but which are not your own	25 (8%)
Books, journals and other information sources available at the Houston Academy of Medicine - Texas Medical Center Library	84 (28%)
Books, journals and other information sources available at or through other libraries	16 (5%)
Colleagues, friends and acquaintances	2 (1%)
Other Sources	41 (14%)

13. "Approximately how many different journal titles do you regularly scan for current awareness, either through your own personal subscriptions or other sources of journals?"

(Overall, respondents regularly scan an average of 15.34 journal titles; the median is 8, the range 0-200, and the standard deviation 25.28)

14. "Approximately how often do you use the Houston Academy of Medicine - Texas Medical Center Library, either in person, by phone, or by sending a secretary, research associate, or other person in your place?"

13 (4%) Never

65 (21%) Seldom (one to six times per year)

156 (51%) Frequently (more than 6 times per year, but less than weekly)

69 (23%) Very Frequently (at least one time each week)

15. "Please check any of the following conditions which, if they existed, might induce you to use the Houston Academy of Medicine - Texas Medical Center Library more often:"

106 (35%) If the library were nearer to my office of laboratory

49 (16%) If the library had a better collection

22 (7%) If the library offered more or better services

15 (5%) If the library were open more hours

78 (26%) If more parking were available near the library

20 (7%) Other

16. "Approximately how many books and journals do you usually look at or check out when you use the HAM-TMC Library?"

14	(5%)	0	
204	(67%)	1-5	
57	(19%)	6-10	
10	(3%)	11-20	
5	(21%)	more than 20	
13	(4%)	no answer	

17. "In this section, please indicate by circling the appropriate response how often you perform the listed activity at the HAM-TMC Library, either in person, or by phone, or by sending another person in your place."

	NEVER	SOMETIMES	FREQUENTLY	NO ANSWER	
a.	30 (10%)	151 (50%)	114 (38%)	8 (3%)	Use library materials in the library
b.	73 (24%)	211 (70%)	5 (2%)	14 (5%)	Work or study in the library without using any library materials
c.	28 (9%)	156 (51%)	111 (37%)	8 (3%)	Check out books, journals, or audiovisuals
d.	51 (7%)	216 (71%)	24 (8%)	12 (4%)	Ask questions at the reference desk
e.	115 (38%)	135 (45%)	42 (14%)	11 (4%)	Request materials on Inter-library Loan
f.	162 (53%)	117 (39%)	16 (5%)	8 (3%)	Request a MEDLINE Search, or other computer search
g.	46 (15%)	159 (52%)	88 (29%)	10 (3%)	Consult the Card Catalog
h.	52 (17%)	167 (55%)	71 (23%)	13 (4%)	Consult indexes or abstract journals in the library
i.	74 (24%)	115 (38%)	106 (35%)	8 (3%)	Look at current issues of journals
j.	165 (54%)	93 (31%)	34 (11%)	11 (4%)	Request to have a photocopy made
k.	123 (41%)	125 (41%)	44 (15%)	11 (4%)	Make a photocopy yourself on self service machines
l.	256 (84%)	30 (10%)	2 (1%)	15 (5%)	Request a bibliography to be prepared manually
m.	79 (26%)	146 (48%)	68 (22%)	10 (3%)	Consult Index Medicus in the library
n.	176 (58%)	95 (31%)	14 (5%)	18 (6%)	Consult Excerpta Medica in the library

o.	328 (79%)	42 (14%)	5 (2%)	18 (6%)	Consult Chemical Abstracts in the library
p.	193 (64%)	69 (23%)	26 (9%)	15 (5%)	Consult Current Contents in the library
q.	210 (69%)	67 (22%)	9 (3%)	17 (6%)	Consult Biological Abstracts in the library
r.	217 (72%)	55 (18%)	12 (4%)	19 (6%)	Consult Science Citation Index in the library

18. "If you have used the MEDLINE service offered by the HAM-TMC Library, how satisfactory have you found that service to be?"

66 (22%)	very satisfactory	98 (32%)	generally satisfactory
12 (4%)	not satisfactory	127 (42%)	no answer

-"Have you found the service to be worth the charges?"

147 (49%)	yes	19 (6%) no	137 (45%) no anwer

19. "In the space below, please make any suggestions you may have as to how the HAM-TMC Library can better meet your information needs."

118 respondents (38.9%) made comments